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Examiner has also objected to the drawings under 37 CFR 1.83(a) as requiring the claimed electromagnet (claims 4 and 8) to be shown or the features be canceled from the claims. Applicants respectfully submit that correction to the drawing is not required because the "further magnet" in claims 4 and 8, which corresponds to the electromagnet, is illustrated as magnet 16 in the drawing. This finds support on page 3, lines 31-32 of the specification, which states that the "magnet 16 may be in the form of a permanent magnet or alternatively an electro-magnet". Therefore, Applicants request that Examiner's objection to the drawing be withdrawn.

A. 35 U.S.C. 112

Claims 1-11 are rejected under 35 USC 112, second paragraph. Specifically, claim 1 lacks sufficient antecedent basis for the limitation "the valve stem assembly" in line 7.

Claim 2 has been canceled and its rejection is therefore moot. Claim 1 has been amended in part by deleting the word "stem" from the valve assembly, thus providing proper antecedent basis for this limitation. Applicants submit that the amended claim 1, along with dependent claims 3-11, are now patentable under 35 USC 112, second paragraph.

B. 35 U.S.C. 102

Claims 1-3, 5, 7, 9 and 11 have been rejected under 35 USC 102(b) as being anticipated by Brown (US 4,273,153). Claim 2 has been canceled and its rejection is therefore moot.

Claim 1 has been amended to recite, in part: "at least a portion of the valve assembly is in the form of or incorporates a permanent magnet and a further magnet is located adjacent the valve seat". Applicants submit that the amended claim 1 is not anticipated by Brown because Brown does not disclose each and every element of the claim, either explicitly or inherently.

Brown discloses a vacuum breaker valve having two permanent magnets 46 and 60, with "magnet 46 centrally mounted above closure member 42" (col. 4, lines 17-18). Both magnets are also surrounded by a stem 44 of the closure member 42, with the stem 44 forming "at least part of a shielding assembly substantially surrounding magnets 46 and 60 (col. 4, lines 17-30). That is, neither of these magnets 46 and 60 is located adjacent the valve seat 32 (or portion 34 forming the closure seat). Instead, as clearly shown in Brown's Figures 1 and 2, the corresponding valve seat portions 32 or 34 are physically separated from magnets 46 or 60 by other structures such as a pathway for airflow 70 and stem 44. Since Brown does not disclose each and every element recited in Applicants' amended claim 1, e.g., a magnet located adjacent to a valve seat, Applicants' amended claim 1 is not anticipated by Brown. Therefore, Applicants submit that the amended claim 1 is patentable under 35 U.S.C. 102(b).

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Claims 3, 5, 7, 9 and 11 all depend, either directly or indirectly from claim 1. For the same reason set forth above, these claims are also not anticipated by Brown, and therefore patentable under 35 U.S.C. 102(b).

C. 35 U.S.C. 103

Claims 4, 6 and 8 are rejected under 35 U.S.C. 103(a) over Brown, and claim 10 is rejected over Brown in view of Tischer et al. (US 5,323,809). Claim 2 has been canceled and its rejection is therefore moot.

Applicants submit that claims 4, 6, 8 and 10, which depend from the amended claim 1, are not obvious over Brown, or in combination with Tischer et al., for the following reasons.

The amended claim 1 recites in part: "at least a portion of the valve assembly is in the form of or incorporates a permanent magnet and a further magnet is located adjacent the valve seat". Applicants submit that not only does Brown not disclose any magnet located adjacent the valve seat (as previously discussed), but if Brown's valve were to be modified with magnet 46 or 60 being adjacent to valve seat 32 or 34, it simply would not have operated as intended.

In fact, the operation of Brown's valve depends on the specific locations of magnets 46 and 60. Brown teaches that "[d]irectly above permanent magnet 46 is a second permanent magnet 60 mounted on the inside of the roof of outer housing 22 ..." (col. 4, lines 52-54), and that the polarities of the adjacent poles of magnets 46 and 60 attract one another (col. 4, lines 56-58). Brown's valve operates by virtue of magnets 46 and 60 being "chosen so that the magnetic attraction force between them holds closure assembly 40 firmly up in the closed position shown in FIG. 1 in the absence of a reduced pressure condition in tank 14" (col. 5, lines 19-22).

Thus, if either magnet 46 or 60 were to be modified to be adjacent valve seat 32 or 34, the resulting valve 10 would not be operable because the attractive force between magnets 46 and 60 - now being off-axis with respect to each other, simply would not result in the vertical motion of the closure member 42 to effect sealing between the closure member 42 and the closure seat 34.

As such, Applicants respectfully submit that the amended claim 1 is not obvious over the teaching of Brown. Furthermore, Tischer et al. does not teach or suggest any need or desirability of having a magnet adjacent to a valve seat. Therefore, even if Brown were to be combined with Tischer et al., one would not have arrived at Applicants' invention as recited in amended claim 1. As such, the amended claim 1 is not obvious over Brown or Tischer et al., either alone or in combination with each other. The amended claim 1 is thus patentable under 35 U.S.C. 103(a).

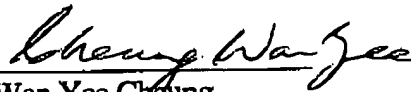
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Since claims 4, 6, 8 and 10 depend either directly or indirectly from claim 1, these claims are also patentable over the teachings of Brown and Tischer et al.

In view of the amendment and the remarks set forth above, Applicants request reconsideration of the rejection and allowance of all presently pending claims. Since the claims are in condition for allowance, prompt and favorable action is hereby respectfully solicited. Should there be any remaining issues, please feel free to call the Applicant's attorney in order to expedite the resolution of these issues.

Attached hereto is a marked-up version of the changes made to the title, abstract and claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

Respectfully submitted,



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Petition for Extension of Time
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Version with markings to show changes made**In the Title**

The title has been amended as follows: [Improvements in]Magnetically-Operated Relief Valves

In the Abstract

Paragraph on page 9 has been amended as follows:

A valve comprising a housing having an inlet and [space]spaced therefrom an outlet, a passageway extending between the inlet and the outlet, and [means] a mechanism located in the passageway for controlling the flow of a fluid between the inlet and the outlet, the [means]mechanism including a valve assembly movable between a first open position spaced from a co-operating valve seat and a second closed position at which the valve assembly sealingly engages the valve seat, in which [magnetic means is provided for biasing] the valve [stem] assembly is biased towards the second closed position using a magnet-operated mechanism.

In the claims

Claim 2 has been cancelled.

Claims 1, 3-4 and 8 have been amended as follows:

1. (Amended) A valve comprising a housing having an inlet and [space]spaced therefrom an outlet, a passageway extending between the inlet and the outlet, and means located in the passageway for controlling the flow of a fluid between the inlet and the outlet, the means including a valve assembly movable between a first open position spaced from a co-operating valve seat and a second closed position at which the valve assembly sealingly engages the valve seat, in which magnetic means is provided for biasing the valve [stem] assembly towards the second closed position; wherein at least a portion of the valve assembly is in the form of or incorporates a permanent magnet and a further magnet is located adjacent the valve seat.
3. (Amended) The valve as claimed in Claim [2]1 in which the further magnet is a permanent magnet.
4. (Amended) The valve as claimed in Claim [2]1 in which the further magnet is an electromagnet.
8. (Amended) The valve as claimed in Claim 7 in which an electro-magnet is [uncorporated]incorporated within or on the valve cap.